REMARKS

Claims 1-15 are pending in the present application. The Examiner objected to claims 8 and 12, rejected claims 1, 3, 5, 8, 10, 12, and 15 under 35 U.S.C. §102, and rejected claims 1, 2, 4, 6-7, 9, 11, and 12-13 under 35 U.S.C. §103. Applicant has amended claims 1, 8, and 15, and added new claim 16. Applicant has also amended claim 3 to correct an antecedent reference. No new matter has been added.

Claim Objections

The Examiner objected to claims 8 and 12 as being substantial duplicates. Applicant has amended claim 8 to cancel subject matter duplicated in claim 12. Reconsideration and withdrawal of these objections are respectfully requested.

Section 102 Rejections

Claims 1, 3, 5, 8, 10, 12, and 15 were rejected under 35 U.S.C. §102(b) as being anticipated by Velastin, *et al.*, "Automated Measurement of Crowd Density and Motion Using Image Processing", 7th International Conference on Road Traffic Monitoring and Control, 26-28 April 1994, pgs. 127-132.

In order for a reference to anticipate under section 102, it must disclose, either explicitly, or under the principle of inherency, every claimed limitation of the claimed invention.

Applicant has amended independent claims 1, 8, and 15 to recite *obtaining a change detection map for distinguishing the platform area from the people in the given frame, based on a Markov Random Field approach wherein a difference between an input frame and a most probable background reference frame is analyzed using a statistical model, wherein information regarding expected background properties and normalized color background properties is combined with spatial and neighborhood constraints and temporal differences due to object motion in the context of said MRF using local dependencies to ensure smoothness.* Although Velastin discloses methods for background removal to estimate crowd density, Applicant urges that Velastin does not disclose or suggest using *a Markov Random Field approach wherein a difference between an input*

frame and a most probable background reference frame is analyzed using a statistical model, for *obtaining a change detection map*, as essentially recited in claim 1, 8, and 15. Since Velastin does not disclose all claimed limitations of claim 1, 8, or 15, Velastin does not anticipate these claims. Reconsideration and withdrawal of these section 102 rejections are respectfully requested.

Claims 3, 5, 10, and 12 all depend from either claim 1 or claim 8, and are patentable for at least the same reasons as claims 1 and 8. Reconsideration and withdrawal of these section 102 rejections are respectfully requested.

Section 103 Rejection of claim 1

Claim 1 was rejected under 35 U.S.C. §103(a) as being obvious over U.S. Patent No. 4,908,704 (Fujioka, *et al.*) in view of U.S. Patent No. 5,999,634 (Abbott *et al.*) and U.S. Patent No. 5,999,635 (Higashikubo, *et al.*).

Applicant urges that claims 1, 8, and 15, as amended, are not obvious over the combination of Fujioka, Abbott, and Higashikubo.

At the vary least, the combination of Fujioka, Abbott, and Higashikubo fails to disclose or suggest a method of video analysis that includes *a Markov Random Field approach wherein a difference between an input frame and a most probable background reference frame is analyzed using a statistical model, wherein information regarding expected background properties and normalized color background properties is combined with spatial and neighborhood constraints and temporal differences due to object motion in the context of said MRF using local dependencies to ensure smoothness,* as essentially recited in claims 1, 8, and 15.

Fujioka is directed to a system for monitoring a moving object, and includes a distance map having distance data from a reference point in a monitor region to points in the distance map, a detector for detecting an object image based on an input image of a designated region and the reference image, and a detector for detecting a distance from the reference point to the moving object based on the detected object image and the distance map.

Abbott is directed systems and methods for analyzing electronic image signals including processing the image signal as one or more cells comprising a plurality of pixels. For consecutive frames of the monitored image, a set of pointers are generated, each containing a value related to the detail contents of the image. The pointers are used to address a memory array, each pointer corresponding to a row in the memory array. For successive frames, the value of each memory element addressed by a pointer is updated.

Higashikubo is directed to measuring traffic congestion utilizing a video camera to capture images of vehicles traveling on a road and analyzing sample points that are assigned to different aspects of the images. Sample points adjacent to one another form either movement or congestion blocks. A state of traffic congestion is measured based upon the resultant movement and congestion blocks.

None of these references discloses or suggests *obtaining a change detection map for distinguishing the platform area from the people in the given frame, based on a Markov Random Field approach wherein a difference between an input frame and a most probable background reference frame is analyzed using a statistical model,* as essentially reacted in claims 1, 8, and 15. Since the combination of Fujioka, Abbott, and Higashikubo fails to disclose or suggest all limitations of claim 1, 8, and 15, a *prima facie* case of obviousness against claims 1, 8, and 15 over Fujioka, Abbott, and Higashikubo cannot be maintained. Reconsideration and withdrawal of this section 103 rejection are respectfully requested.

Dependent Claim Rejections

Claims 4, 7, 11, and 14 were rejected under 35 U.S.C. §103(a) as being obvious over Velastin in view of U.S. Patent No. 5,034,986 (Karmann, *et al.*).

Claims 2, 6, 9, and 13 were rejected under 35 U.S.C. §103(a) as being obvious over Velastin in view of Karmann and Ostendorf, *et al.*, "HMM Topology Design using Maximum Likelihood Successive State Splitting", Computer Speech & Language Vol. 11, No. 1, pg. 17-41 (1997).

Claims 2, 4, 6, and 7 depend from claim 1, and claims 9, 11, 13, and 14 depend from claim 8. The Examiner cited Karmann as disclosing updating a background reference

frame based on a change detection map, and Ostendorf as disclosing the use of the Hidden Markov Model. However, neither of these references discloses or suggests *obtaining a change detection map for distinguishing the platform area from the people in the given frame, based on a Markov Random Field approach wherein a difference between an input frame and a most probable background reference frame is analyzed using a statistical model, wherein information regarding expected background properties and normalized color background properties is combined with spatial and neighborhood constraints and temporal differences due to object motion in the context of said MRF using local dependencies to ensure smoothness,* as essentially reacted in claims 1 and 8, thus neither of these references rectifies the deficiencies of Velastin as discussed above. Thus, Applicant urges that a *prima facie* case of obviousness of dependent claims 2, 4, 6, 7, 9, 11, 13, and 14 over Velastin and Karmann or Velastin, Karmann and Ostendorf cannot be maintained. Reconsideration and withdrawal of these section 103 rejections are respectfully requested.

New claim 16 depends from claim 15, and is patentable for at least the same reasons as claim 15.

CONCLUSION

Applicant urges that claims 1-16 are in condition for allowance for at least the reasons presented. Early and favorable reconsideration is respectfully requested.

Respectfully submitted,

By: Donald B. Paschburg

Donald B. Paschburg
Reg. No. 33,753
Attorney for Applicants

Siemens Corporation
Intellectual Property Department
170 Wood Avenue South
5th Floor – IPD Dept.
Iselin, New Jersey 08830
(732) 321-3191